



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

Table of Contents

- A. General Application Information
- B. Eligibility Factors
- C. Executive Summary
- D. Proposed Funded Service
- E. Proposed Service Offering
- F. Technology Strategy
- G. Project Milestones Completion Factors
- H. Project Budget
- I. Self Scoring
- J. BTOP Certification Requirements
- K. BIP Certification Requirements
- L. Schedules
- M. BIP – BTOP Service Area Details
- N. Uploads



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

A. General Application Information

1. Applicant Information	
1-A. Name, Address, and Federal ID for Applicant	
i. Legal Name:	Executive Office State of West Virginia
ii. Employer/Taxpayer Identification Number (EIN/TIN):	556000780
Street 1:	1900 Kanawha Blvd E #1
Street 2:	
City:	Charleston
County:	Kanawha
State:	WV
Country	United States
Zip/Postal Code:	25305

1-B. Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix:	Ms.
First Name:	Kelley
Middle Name:	M
Last Name:	Goes
Suffix:	
Telephone Number:	
Fax Number:	
Email:	kelley.m.goes@wv.gov
Title:	Cabinet Secretary, WV Dept of Commerce



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

1-C. Other Required Identification Numbers	
i. Organizational DUNS:	809594377
ii. CCR # (CAGE):	5M0J8
iii. Funding Opportunity Number:	1
iv. Catalog of Federal Domestic Assistance Number:	BTOP CFDA Number: 11.557 BIP CFDA Number: 10.787 BTOP CFDA Title: Broadband Technology Opportunities Program BIP CFDA Title: Broadband Initiatives Program

1-D Eligible Entities

Please classify your organization. (Note: If there are multiple organizations involved in the project, designate the lead applicant that would enter into a Loan or Grant agreement with the Agency and assume operational and financial responsibility should an award be made). **State or State Agency**

1-E. RUS Borrower Status

No

1-F. Applicant Federal Debt Delinquency Explanation

Is the Applicant Delinquent On Any Federal Debt? **No**
Federal debt delinquency Explanation:
 West Virginia is NOT delinquent on any Federal Debt.

2. Project Description & Project Title

2-A. Project Title: West Virginia Statewide Broadband Infrastructure Project-"Middle Mile"

2-B. Project Description: The West Virginia Statewide Broadband Infrastructure Project extends broadband services across the state by leveraging existing infrastructure to build a middle mile network with Multiprotocol Label Switching (MPLS) over Microwave and Fiber technology. The proposed network will provide a backbone to community anchors, including: schools, libraries, hospitals, public safety agencies and jails.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

3. Application ID for Multiple Submissions for Identified Service Areas:
This is the only application for BTOP funding and the State of West Virginia is not applying for any BIP funding effectively causing this application to be the sole request for the Executive Office, State of West Virginia.

4. Rural Area Determination
At least 75 percent of the proposed service area to be funded falls within rural areas that are unserved or underserved.
No

5. Applications for Rural Areas: Please choose the funding program(s) to which you are submitting this application.

- a) BIP broadband infrastructure category to which you are applying:

- b) Would you like this Application for Rural Areas to also be considered for BTOP funding?

- c) BTOP Infrastructure category for which you are applying.

6. Applications for All Other Areas: Per the NOFA, all applications to fund broadband infrastructure projects in areas that are less than 75% rural must be submitted to NTIA for consideration under BTOP.

BTOP broadband infrastructure category to which you are applying: **Middle Mile**

B. Eligibility Factors

7. Application Submission

BIP and BTOP Factors Selected By Applicant:

Applicant has submitted a completed application and provided all supporting documentation required for the application.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

<p>The Project will be substantially complete within 2nd year from the award date, and the project will be fully complete by the end of the 3rd year from the award date.</p>
<p>For projects seeking more than \$1 million funding, the Applicant agrees to submit a certification, from a Professional Engineer, that attests that a) the system will deliver the stated performance; and b) the projected project will be substantially completed within two years, and fully completed within three years.</p>
<p>The Applicant provides two-way data transmission with advertised speeds of at least 768 kbps downstream and 200 kbps upstream.</p>
<p>Applicant understands and agrees to comply with the nondiscrimination and interconnection obligations outlined in the NOFA.</p>
<p>If applying for a last mile Broadband Infrastructure project, applicant understands and agrees to comply with the last mile coverage obligations as outlined in the NOFA.</p>

<p>Additional Factors for BIP Selected By Applicant</p>
<p>At least 75 percent of the proposed funded service area qualifies as unserved and underserved rural areas in accordance with the NOFA.</p>
<p>Applicant understands and agrees that the project will be fully funded in accordance with the requirements of the NOFA.</p>
<p>Applicant understands and agrees that only projects that RUS determines to be financially feasible and/or economically sustainable will be eligible under this NOFA.</p>



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

<p>Additional BTOP Factors Selected By Applicant</p> <ul style="list-style-type: none"> • Conformity with Statutory Purposes • Cost Sharing/Matching • Reasonableness of Project Budget
The project advances at least one of the statutory purposes for BTOP
Applicant has provided documentation that the project would not have been implemented during the grant period without federal grant assistance.
Applicant has provided a budget that is appropriate to the proposed technical solution and only includes eligible costs.

- **Demonstration the Project Could not be Implemented But For Federal Grant Assistance**
Applicant is providing matching funds of at least 20 percent towards the total eligible project costs?
Yes

7-k. Cost Sharing/Matching Fund Explanation
Executive Office, State of WV did not request a waiver of the matching funds request.

C. Executive Summary

Executive Summary of Project for BIP and BTOP:

8. Infrastructure Projects Executive Summary

Recognizing that broadband is imperative in serving its citizens and bringing economic development, West Virginia Governor Joe Manchin, III signed legislation creating the Broadband Deployment Council (BDC), an entity designed to facilitate innovative, quality, affordable broadband to all West Virginians. West Virginia is positioned to systematically and completely deploy broadband throughout the state, which will create a replicable model for other states to follow. West Virginia, located in the heart of Appalachia, is entirely mountainous, is the only state entirely located in the Appalachian Regional Commission, and



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

has challenging demographics. Compared to the national averages, West Virginia’s population is older; is less educated; lives in more rural areas; has a higher poverty rate; is in poorer health, including smoking, obesity, diabetes, and asthma; and lacks health insurance. Combined, these present West Virginia with unique broadband challenges. West Virginia’s terrain is a major challenge for broadband deployment, as is reflected in the build out rate. This leaves a major part of the state’s households with limited or no access to broadband. Coverage cannot be extended due to the cost of deployment and population scarcity. The most challenging parts of the state both demographically and topographically remain un-served.

In order to facilitate broadband deployment; the delivery of critical public services in healthcare, education, and public safety; and private investment in infrastructure and technology applications for broadband, it is critical that West Virginia have a complete and robust middle mile. West Virginia’s broadband deployment strategy begins with the expedient, systematic, and sustainable build out of an “open” network middle mile solution that will provide fiber to critical community anchor tenants. Distribution of the bandwidth to support private, public, and individual connectivity will then occur through switching, routing, and leadership. This high quality middle mile is essential to last mile completion of broadband deployment, and will provide a full range of interconnect possibilities to meet provider, carrier, and end user requirements. West Virginia’s strategy is designed to foster competition generated by built-in multiple accesses, with the foreseeable reduction in costs for service for actual end users.

Due to West Virginia’s topographical and demographic challenges, this middle mile build out will not be completed by the private sector, partially due to the low take rate throughout the state. This is another hurdle that West Virginia must overcome. Statewide the take rate is 40.1%, a number so low that it illuminates the reality that the vast majority of the state has a much lower take rate. For a private provider, the costs are too high to reach too few customers who have not proven historically likely to purchase broadband services when provided. Left to pure market forces, West Virginia, and other rural areas, will have inferior technology or none at all.

To address demand and sustainability issues, the State, through the selection of the anchor tenants for the build out, designed the broadband deployment strategy to enhance critical services to citizens, which is paramount to building demand for robust broadband service.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

West Virginia's project is anchored by critical community facilities. West Virginia systematically assessed its schools, libraries, healthcare facilities, public safety institutions, and emergency response entities to determine those with adequate broadband infrastructure. The facilities identified in this grant application are unserved by fiber. The State's plan will deliver fiber and connectivity to that fiber to the facility/institution. This deployment of robust middle mile infrastructure would begin immediately upon receipt of funds. The requested service creates opportunity for redundancy, increased investment by private providers in response to the demand for enhanced services, and the deployment of current technology. This middle mile solution will push fiber into parts of the state where there is none, thus creating the opportunity for the build-out of broadband to homes, businesses, and other public institutions currently without access. The last mile solutions can now be technology neutral as backbone will exist where it previously did not.

West Virginia's approach serves other important goals and initiatives. The jobs created by this request are easily quantified. Extrapolating from U.S. Department of Commerce data, CWA estimates an employment multiplier effect of 19.5 jobs in telecommunications and information technology (IT) for every \$1 million invested. Secondly, the economic development benefits are well documented and the impact on this rural state will be profound and immediate. According to a Brookings study, as detailed in a February 2008 report by Connected Nation, for every 1% increase in broadband penetration, employment is projected to increase by 0.2 to 0.3%. The U.S. Department of Commerce also determined that communities with broadband not only increased the employment rate by 1%, but added 0.5% to the growth of business establishments and 0.5% to the share of IT establishments. Thirdly, the services critically needed by West Virginia's vulnerable population (aged, more likely to suffer from chronic disease, more likely to be disabled, more likely to be undereducated) are enhanced and accelerated because the build out serves critical community facilities first, by design.

- Healthcare – The West Virginia Department of Health and Human Resources (DHHR) provided input into the overall strategy and is primed to be an anchor of the system. DHHR envisions the efficient delivery of healthcare through the use of electronic health records. DHHR's portion of the middle mile has been specifically designed to complement the federal initiative for Electronic Health Records (HER) and the state Health Information Network (HIN). The middle mile will provide access to over 25,000 providers serving doctor's offices, healthcare facilities, hospitals, and individuals. The bandwidth specifications and system deployment are designed to deliver healthcare to the West Virginians in greatest need of



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

healthcare. These individuals are also the least likely to have access to a hospital.

- **Education** – As primary stakeholders, the West Virginia schools are in dire need of this middle mile solution in order to provide suitable bandwidth to an additional 471 schools. The West Virginia Department of Education has the history, and the vision, of investing in technology, but the most remote schools, which face the greatest challenges in student demographics, are the ones that have been left behind in bandwidth. West Virginia’s strategy systematically addresses this problem and brings all West Virginia schools to the desired bandwidth.
- **Libraries** – Public libraries (176) complement West Virginia’s education initiatives. The majority of the libraries are without sufficient broadband capability to serve the needs of a community public computing facility; this middle mile will serve to reach the general community during normal business hours and after hours. As the last mile solutions are developed and funded, the library system is essential to the Governor’s goal of broadband accessibility for all citizens and businesses of West Virginia.
- **Public Safety** – The 53 (+2 redundancy) West Virginia public safety answering points (PSAPs) cannot function without the middle mile solutions. The PSAPs are ready and have sustainment funding earmarked for the last mile solution. Ultimately the PSAP solution will enable over 344 law enforcement (state police ((77)), county deputies/sheriff departments/police departments) and 447 volunteer and paid fire departments full broadband services. Geographic information system and mapping applications require the middle mile in order to reach out as required by policy and plans. Additionally this grant will serve 55 county courthouses.

This middle mile solution can be built rapidly and is guaranteed to provide both broadband access and service to the anchor tenants and the low income, aged, and unemployed as the deployment uses the competitively bid existing contract for broadband services. Currently, Verizon holds this state contract and provides statewide solutions, working with the state, local providers and its own network. This proposal is to build the primary middle mile solution; thus allowing for multiple last mile solutions that may be accessed by most, if not all, providers. The last mile is not dependent on the type of fiber, who built it, or what it looks like. The importance is placed on good quality and accessibility for a nominal access fee. This solution provides a gamut of interconnect possibilities that will meet provider, carrier, and end user requirements. Anticipation is for actual end user costs for service to be greatly reduced due to the natural competition generated by the multiple accesses provided with the solution. This enables rural West Virginia better access at a greatly reduced rate.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

The secretary of the West Virginia Department of Commerce, Secretary Goes, oversees the broadband processes by designation of the governor and as chairperson of the BDC. The critical anchor stakeholders for this grant are designed to provide stability and structure to the broadband build out and utilization. Uniquely in this endeavor, each stakeholder from the critical community facilities participated at the highest level of his or her department, building a cohesive team to ensure the project’s success. The Governor’s Office of Technology is poised to take an aggressive role in the daily operation, maintenance, and sustainment of the results of this proposal.

Description of BTOP Project Purpose (BTOP Applicants Only Next Three Questions)

9. BTOP Statutory Purpose:

Provide access to broadband service to consumers residing in “unserved” areas of the United States.
Provide improved access to broadband service to consumers residing in “underserved” areas of the United States.
Provide broadband education, awareness, training, access, equipment, and support to schools, libraries, medical and healthcare providers, community colleges and other institutions of higher education, and other community support organizations by or through these organizations.
Provide broadband education, awareness, training, access, equipment, and support to organizations and agencies that provide outreach, access, equipment and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations.
Provide broadband education, awareness, training, access, equipment, and support to job-creating strategic facilities located within a defined economic zone, or community as designated by a State authority, Department of Commerce , HUD or USDA.
Improve access to, and use of, broadband service by public safety agencies.
Stimulate the demand for broadband, economic growth, and job creation.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

10. Description of BTOP Project Purpose:

"Broadband access links people to so many possibilities. It helps small businesses grow, creates jobs, helps our students learn, and improves access to health care. It is imperative that we expand this critical technology infrastructure to all parts of the United States. Broadband expansion will boost economic activity nationwide, and it would help ensure that communities across West Virginia have the technology – and the opportunities – they deserve." - State of West Virginia Senator Jay Rockefeller

"Without the communication, without the Internet, without being linked to the rest of the world, it's going to be hard to compete, not just for the states, but for the nation" – State of West Virginia Governor, Joe Manchin III

The State of West Virginia lags behind much of the United States in the expansion of broadband capabilities and enhanced networking capabilities. As much of the nation is experiencing the advantages of being “connected,” the communities of West Virginia and their constituents have not been afforded the opportunity to utilize the commonly available internet based tools for schools, health care, public safety, libraries, courthouses, jails and research. Competitive network vendors have often viewed the potential expansion of network facilities in West Virginia as too costly to provide a return on investment. This situation has created a substantial gap that is limiting the growth potential of the entire state. Statistically, figures indicate that less than 25% of the State currently has access to broadband and of those only 40% subscribe, which is clearly behind many other States.

While the geographic topography in West Virginia presents difficulties in extending network access to the unserved and underserved areas within the State, broadband access is available in many of its urban regions. These urban areas have experienced moderate growth in connectivity and population. These areas have also gained greater efficiency for their businesses, communities, and residents through the competition of broadband service providers. Growth in these areas has proven competitive availability is the key element required to successfully fulfill the goals of this project. Since the entire State of West Virginia is categorized by NTIA guidelines as underserved, the primary use of BTOP funding will be to extend the reach and density of broadband access throughout the state. This project requires BTOP funding to satisfy all of the following statutory objectives upon deployment.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

Project Objectives:

- Provide broadband network access to consumers in unserved and underserved areas of the State of West Virginia
- Provide improved access to broadband service to consumers residing in underserved areas of the State of West Virginia
- Provide broadband education, awareness, training, access, equipment and support to:
 - o Schools, health care, public safety, libraries, court houses, jails and other community support organization by or through these organizations;
 - o Organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations;
 - o Strategic facilities, designed create employment opportunities, within a State designated economic zone, Economic Development District designated by the Department of Commerce, Renewal Community, or Empowerment Zone designated by the Department of Housing and Urban Development, or Enterprise Community designated by the Department of Agriculture.
- Provide improved access to, and use of, broadband service by public safety agencies
- Stimulate the demand for broadband, economic growth and job creation

In compliance with the guidelines, the broadband solution is designed as a layered solution. The primary emphasis in this application is to build the physical connections to the community anchor locations first. This step will create the middle mile distribution facility to each of the selected groups. Currently, many do not have the physical connectivity options to purchase an advanced IP based service with the necessary broadband speed to support the application.

Once the physical networks are completed, they will be used to enable the services layer. This layer is not included in the funding application but is recognizable because of the advantage it creates for the agencies, the communities and for the State of West Virginia. Once the network delivers advanced IP service to the community, a backbone meshed technology solution is feasible. This can easily be created through the community anchors by purchasing IP services and creating a logical cloud type network. This design represents an “open-access” model that creates the ability for each community anchor group to design a virtual private network (VPN) across the state. Each community anchor will be able to leverage the current Verizon MPLS contract to select a service level for the backbone carriage that meets their needs. For this example, a minimum service level of 10 Mbps to all locations will provide secure VPN access



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

from one end of the state to the other.

VPN networks will enable greater information sharing, enhanced communications solutions, remote access to common files, distributed secure computing and anytime, anywhere access. This approach offers a solution that encourages a balance of public and private sector support. Partnerships with the community anchors encourage the usage of the network and purchase of the advanced services.

Additionally, these partnerships ensure the deployment of the network impacts the broadest range of users while developing a state-wide logical network. Each community anchor group has identified applications that could provide better service once the physical infrastructure is deployed. All of these applications will drive demand to the local communities, enhance the services each group currently provides, and/or expedite services to the rural and underserved areas.

This project is a shovel-ready solution. With the award of BTOP funding, all elements are in place to execute this strategy. Utilizing ratified contractual documents within the State, in concert with community anchor relationships, project implementation will be immediate.

11. BTOP Enhanced Services for Health Care Delivery, Education, and Children:

Mindful application of healthcare information technology has been shown to reduce the cost of healthcare and increase efficiency through better retention and retrieval of records, improved management of chronic diseases, coordinated care among and sharing of healthcare professionals, and enhanced decision support and evidence based decision making. As medical technology and applications have advanced, so has the need for increased bandwidth. As the US Internet Industry Study in 2007 noted, “Medical records have become more extensive, and need to be accessed by more parties simultaneously. Digital images have become clearer, but also larger. Many potential telemedicine projects have been hampered, therefore, by the lack of appropriate telecommunications technology, because regular telephone lines do not supply adequate bandwidth for most telemedical applications.”

In West Virginia, figures indicate that less than 25% of the State currently has broadband access. Of this 25%, only 40% actually subscribe to some sort of broadband. Thus, those who could benefit the most from healthcare electronic transference of information and telemedicine do not have access to it. In fact, the paradox is that those most vulnerable populations of



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

citizens in West Virginia, with the least access to brick and mortar healthcare facilities, are also the ones unable to access advanced broadband connectivity for telehealth applications.

This WV request for “middle-mile” broadband connectivity will ensure that other efforts around the state related to health information exchange, electronic health records, and personal health record applications are able to reach our most vulnerable populations. It should be noted that a good portion of the specific facilities “connected” by funds requested in this application are:

- Critical Access Hospitals
- Federally Qualified Healthcare Centers
- Community Mental Health Centers
- Urgent Care and Emergency Care Service Providers
- Rural Healthcare Clinics and Providers

By extending broadband connectivity to these anchor facilities and caregivers, we will be delivering healthcare to our most vulnerable populations, including the low income, unemployed and the aged; thus advancing the objectives of healthcare reform through information technology. This high bandwidth “dial-tone” will enable the following key applications to be undertaken by the State:

- Electronic Medical Records and Health Information Exchange.
- Telehealth and Telemedicine.
- Medical education.
- Virtual healthcare teams.

Education, another essential community anchor, will be supported by the West Virginia Statewide Broadband Infrastructure Project. According to the State Educational Technology Directors Association (SETDA), while national statistics boast almost 98% connectivity in US schools, the substance and bandwidth of the connection is often problematic and insufficient. High-speed broadband access and connectivity are vital for economic growth, global competitiveness, education, innovation, and creativity. Ensuring high-speed broadband access for all students has become a critical national issue especially when considering the necessity for the use of technology in assessment, accountability, engagement, and preparing our students for work and life in the 21st century.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

Of the 741 schools in West Virginia, 270 currently have access to High-speed broadband service, well below the national average. This project will provide robust high speed internet access to schools throughout the State, creating opportunity for economic growth, global competitiveness, education, innovation, and creativity.

D. Proposed Funded Service Area

12. Proposed Funded Service Area Maps:

12-A. Service Area Map (Reference Number): **5E9F-395F-4DD1-A0E3**

12-B. Is the applicant is seeking a waiver for providing less than 100% coverage of a census block. **No**

13. Proposed Funded Service Area (BIP - Last Mile Projects):

Please refer to section M at the end of document.

14. Proposed Funded Service Area (BTOP - Middle Mile Project):

Please refer to section M at the end of document.

15. Non-Funded Service Area(BIP Only):

BIP Question only, not required for BTOP.

16. Coverage Waiver:

Applicant is seeking a waiver for providing less than 100% coverage of a census block.

No

For Response of “Yes” please refer to upload section for additional supporting documentation.

17. Methodology for Area Status:

West Virginia is applying for funds to acquire and construct a multi-use high speed IP backbone that will provide presence and interconnect points throughout the state. The network will provide cost-effective high speed broadband connectivity to numerous critical community facilities and local governments throughout every area of the state. This middle mile approach will bring benefits to the entire state, including the deployment of fiber deep into areas presently unserved.

At this time, West Virginia does not have sufficient data to properly identify all unserved and underserved areas of the state. This application applies the best available data, acquired from



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

various telephone, cable and wireless companies, to estimate how much of West Virginia meets these definitions. The methodology is described below.

The state analyzed decennial census data based on the definitions of rural and remote areas as defined in the NOFA. Less than 2% of West Virginia can be considered urban based on these definitions. Additionally, about 9% of West Virginia can be considered remote under the definitions. This “remote” designation vastly underestimates the true conditions in West Virginia because the 50 mile radius factor allows portions of the state to be included within the sphere of towns from other states – where the providers have no ability of inclination to provide service across the border – and also swallows up vast geographically challenging and literally remote and unserved regions of the state because of the scale of this radius compared to the size of West Virginia. Applying the current definition, however, leaves 89% of the state that can be considered rural/remote.

The broadband infrastructure location data was buffered to 500ft to provide an indication of the areas that have coverage available. On this basis, approximately 11% of the state is served by broadband coverage and approximately 89% of the land area of the state does not have terrestrial broadband coverage available. We cannot be certain how many households within these land areas have subscribed to broadband. Based on testimony filed with the West Virginia Public Service Commission, the maximum subscription rate is just over 40% as an average for the entire state. That estimate was based on coverage analysis that used 5-digit zip codes, and is, therefore, lacking the specificity necessary for fully ascertaining subscription. The indication is that the state subscription rate is far lower.

Clearly, West Virginia, as a whole, can be categorized as underserved. The areas that can be confidently labeled as served are concentrated in a few urban areas, and accordingly, much of the land area of the state qualifies as unserved. Further, a significant amount of West Virginia’s broadband infrastructure serving households is copper based. It is fair to say that there are households shown as covered – even in relatively urban areas – that may not have access to broadband meeting the NOFA definition of 768 kbps.

Based on the data accumulated for this application, provider data, other available data, the assumptions as described, and also on the design of our network, the application defines the entire state as the service area.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

18. Middle Mile Benefits

The primary service providers identified for the interconnect are Verizon and Frontier. The last mile service areas for which the middle mile project will provide service include: schools, health care, public safety, libraries, court houses, and jails. Based on data provided by Verizon – 270 of 741 schools in West Virginia have fiber connectivity. The need for connectivity for the remainder of 471 (64%) of schools, hospitals, PSAPS, libraries, courthouses and jails identifies a significant level of need in the state. The anchors will be provided opportunities for additional education, training, access, equipment and support through the broadband initiative. Public safety agencies will gain much needed access to and use of broadband services.

E. Proposed Service Offering

19. Broadband Service Offerings for Last Mile Project:

Please refer to upload section at the end of the document.

20. Service Offerings for Middle Mile Project:

Please refer to upload section at the end of the document.

Competing Service Providers

21. Existing Broadband Service Providers and Services Offered:

Please refer to upload section at the end of the document.

Non-Discrimination, Interconnection

22. Description of Network Openness:

Interconnection to the backbone through the community anchors is designed to offer “open access” to any provider that may wish to deliver a solution. Additionally, the interconnection among all of the community anchors will allow for greater redundancy, resiliency and survivability across the state.

Using the previously defined model, interconnections created across the middle mile



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

deployment will allow the education anchors to share coursework, distribute learning tools and maximize the educational opportunities available. This concept will interconnect schools through an individualized network providing custom applications enhancing shared learning activities within the State.

Within the health care industry, the middle mile solution will permit data exchange required for the remote sharing of diagnosis and analysis of illness and treatment with the necessary speed and security.

The Public Safety community benefit from the increased data and voice interoperability. Specifically, a state wide radio infrastructure will provide interoperable voice radio systems to interconnect. This systems can be augmented to support video and voice over IP services. Public Safety First Responders will deploy statewide applications which will enhance the personal safety of the First Responder and the citizen. This middle mile solution fully meets the open architecture to support next generation 911.

Most important, middle mile deployment will allow greater connectivity options to be designed and deployed. In many cases, services that are available from a provider are not available in West Virginia because the middle mile options do not have the capacity to provide the adequate service to the end user.

Any entity wishing to join the network will be required to enter into an interconnection agreement which identifies the terms and conditions of use. While terms and conditions will be maintained by the service provider, network service level agreements will meet the terms of the current Verizon MPLS contract. Associated networks will be administered by the respective vendor according to the policies drafted to meet the specific criteria of of the entity being served.

Non-Discrimination and Interconnection (BTOP applicants only for next three questions)



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

23. Non-Discrimination Obligations (applicable to Last Mile and Middle Mile Applicants):

Adhere to the minimum non-discrimination requirements as set forth in the NOFA.

Display the nondiscrimination practices in a prominent location on the service provider's web page, and provide notice to customers of changes to these policies.

24. Interconnection Obligations (applicable to Last Mile Applicants):

25. Interconnection Obligations Middle Mile Applicants:

Adhere to the minimum interconnection requirements as set forth in the NOFA.

Display the interconnection policies in a prominent location on the service provider's web page, and provide notice to customers of changes to these policies.

Commit to offering wholesale access to network components and services such as wavelength or fibers at reasonable rates and terms.

Commit to binding private arbitration of disputes concerning interconnection obligations.

Cost Effectiveness and Affordability

26. Cost per Household (BTOP only):

This request is for "Middle Mile" only. Therefore, an estimate of the cost per household, is not applicable to this grant submission. However, using the formula noted in the grant guidance the following calculation is provided:



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Total amount of grant: \$126,323,297 divided by number of households: 743,064 equals a cost per household of \$170.

27. Affordability

As noted in section 26 “Cost per Household”, because this grant request is for a middle mile solution there is no estimated or actual cost per household. As to affordability, the middle mile solution (build out of fiber) will effectively and efficiently provide middle mile solutions across the state reaching public safety, schools, public and private sector, libraries, medical applications and citizens. Because a viable middle backbone will be available supporting open architecture multiple vendors may chose to develop a last mile solution. This competition will drive cost per end node down. This application is statewide and in locations where there is no middle mile solution today, nor is any planned. The competitively bid (under State of West Virginia purchasing rules and regulations) MPLS contract coupled with FCC regulations ensure the best cost possible for this infrastructure build out.

F. Technology Strategy



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

28. Technology Type:

Wireline - xDSL
Wireline - Coaxial Cable
Wireline - Fiber-optic Cable
Wireline - Hybrid System
Wireless - Terrestrial Fixed
Wireless - Terrestrial Mobile
Other

Other: This request is middle mile, but will support the noted.

29. System Design

System Design Strategy

A key reason why service providers have not provided broadband access to unserved and underserved areas is due to the cost of building the network infrastructure to reach those areas. The State of West Virginia is made up of a diverse topographic environment, most of which is at best hilly, at worst mountainous. The State has terrain that precludes, in many locations, the ability to run optical fiber or copper pairs. One linear mile of distance could equate to 2-4 miles up and over rugged terrain, so rugged at times that Utility Companies could not provide the mounting pole installation or trenches necessary to run the optical fiber or copper. Plus the costs incurred for running said fiber or copper over this terrain are not feasible for most budgets.

Because of these terrain limitations, a major portion of the State's 911 Systems, to include Public Safety Answering Points (PSAP's), Dispatch radios sites, and voted receive sites, are interconnected across and supported with Licensed Microwave Radio Systems. This support includes basic operation of First responders, including Law Enforcement, Fire, Emergency



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Medical Services (EMS) and DHS/Emergency Management Services. The links provide the capability to talk out (from the radio site) and talk back (to the radio site) between the Dispatchers located at the PSAP and these First Responders.

Currently, the State of West Virginia has 84 Communications tower or rooftop sites, many designed for self-sustainment in adverse conditions for a specified amount of time, interconnected by 95 Microwave radio links, to provide a Backbone for the aforementioned First Responder services. The services provided are incorporated into the Licensed Microwave system across a 4DS3 composite data pipe. This pipe is made up of 4x45MB data channels, and has the capacity and supports the necessary bandwidth for current use, however, does not provide the needed growth capacity for current use, but does not have sufficient capacity for future growth.

The State proposes to add 12 primarily self-sufficient tower sites, to include shelters, towers and generators, to the existing system, and further to propose and install another 4DS3 (180 MB Capacity) Licensed Microwave system to all 96 tower sites. This system coupled with an existing state wide contract with Verizon to govern the purchase of infrastructure and services throughout the state would provide “middle mile” broadband capability to the proposed State anchor sites in unserved, underserved rural and remote areas that no other carrier reaches today.

The assets of this existing microwave infrastructure include not only communications equipment, but towers, roads, rights-of-way, real estate, buildings, cabinets and other facilities. By leveraging and upgrading this existing infrastructure, the State will be able to provide the most cost-effective and shovel-ready approach to expedite broadband proliferation in unserved and underserved areas of West Virginia, while also improving communications for public safety, education and healthcare. The proposed system will provide Middle Mile connectivity enabling equal opportunity for all Service Providers to reach the unserved and underserved areas of West Virginia.

Key Network Components

The objective of the proposed Middle Mile network is to transport traffic from targeted unserved and underserved areas of West Virginia to the existing Service Provider networks. The Middle Mile network enables connectivity from the end-user to the Internet by providing backhaul bandwidth and infrastructure to Rural ISPs., as illustrated below:

Service Provider <-> West Virginia Middle Mile <-> Rural ISP Last Mile



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

The State will leverage its existing infrastructure to build a Middle Mile network that provides MPLS over Microwave and Fiber technology. The key components of this network are as follows:

- This microwave network will be upgraded to provide 180 Mbps of Middle Mile bandwidth. This bandwidth will provide the backhaul for broadband provider's connectivity to any of the noted anchor institutions.
- The Fiber Segments will provide new infrastructure to extend "middle mile" deeper into rural areas of West Virginia, with a minimum 10 Mbps to every anchor institution. It is the point at which the Service Provider can connect to the Middle Mile to backhaul their broadband traffic.

Service providers will interconnect with the statewide Middle Mile network via fiber optics at redundant locations, creating gateways to the service provider of choice. The Middle Mile network will transport traffic between these gateways and the Last Mile, where providers can deliver Last Mile services using multiple technologies.

Wireless Technology Details

Microwave/MPLS Middle Mile: The current microwave loops use 6GHz or the 10/11 GHz spectrum depending on the length of the Hop. In order to increase capacity, there will be an overlay of a mirrored 6 and 10/11 GHz radio at each existing tower location, as well as the proposed 12 tower locations. The proposed radios can share a common cross-polarization antenna with the existing radios, thus avoiding significant incremental tower loading. To be most cost-effective the solution will share antennas with separate radios and feeder / waveguide installations whenever possible. All traffic will converge on the common MPLS network, where it will be logically separated through virtualization, enabling the appropriate security and quality of service mechanisms for the public safety as well as Anchor location traffic.

Spectrum availability: Spectrum has been pre-determined to be available for what is required by the design. FCC licensing and engineering has been included in this proposal.

Topology and Morphology of the Area: The design considers the terrain which has 80+ foot trees and 10 feet of growth to guarantee line of site now and in the future for the microwave. All links have been engineered to vegetation and seasonal changes and will have a minimum reliability of 99.999%.

Power Levels at User Devices: The solution uses already proven, widely-used technology. All power levels will be within FCC recommendations.

Specific Advantages of System



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Advantages of the Proposed Network Include:

- Cost-effective, shovel-ready approach by leveraging existing state infrastructure.
- Converged broadband backhaul enables service providers to deliver broadband services to unserved and underserved citizens, healthcare, education and public safety
- 180 Mbps Middle Mile network to extend broadband services to most un/underserved areas of West Virginia
- 10 Mbps public safety network with better control, flexibility and capacity for public safety traffic at reduced costs
- Complete logical segregation of different traffic types (public safety, rural broadband, education, healthcare) with MPLS advanced security and Quality of Service mechanisms
- Standards-based solution enabling interoperability between service providers, education, healthcare and public safety
- Reliability ensured via MPLS fast re-route in the event of a link loss
- Strategically placed handoffs to existing fiber optic networks to scale network bandwidth, offload traffic and conserve microwave bandwidth where required, and provide redundant connections to ensure high availability.

Future Capabilities

The proposed solution features standards-based technologies to assure interoperability across multi-vendor products. The upgrading of the existing State wide Microwave network and the build out of the Fiber network using existing state wide contract with Verizon, provides placement of Broadband facilities within reach of the, Schools, Health Care, Public Safety, Libraries, Court Houses, and jails (as anchors). Installations of this infrastructure also provides broadband infrastructure within reach of other commercial institutions that will benefit when requesting broadband services Once in place, this infrastructure will reduce/eliminate their special construction charges making Broadband capabilities economically feasible in areas where it was previously cost prohibitive.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

30. Network Diagram:

Please refer to upload section at the end of document.

31. Certification by Professional Engineer:

Please refer to upload section at the end of document.

32. Buy American Waiver Request:

Is the applicant seeking an individual waiver of the Buy American provision? **No**

Buy American Waiver Request – Legal Justification

We are not asking for a waiver to the Buy American Waiver Requirement.

33. Choice of Service Provider:

Does the project’s Infrastructure and the Company’s business plan allow more than one provider to serve end users in the proposed funded service area?

Yes

G. Project Milestones and Completion Factors

Timeline & Milestones

34. Infrastructure Build-out Timeline:

Please refer to upload section at the end of the document.

35. Licenses, Regulatory Approvals and Agreements:

The West Virginia Infrastructure project has been designed to reach all of the community anchor locations in the State. This middle mile strategy is designed to build out the middle mile network that can serve to create the demand for broadband and serve as the gateway to communications service that is not available today.



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Most of the fiber build will be within the Frontier and Verizon territories. The total mileage of the special construction is estimated to be 900 miles of new fiber. Verizon already owns the largest portion of the right-of-way necessary to build the fiber into the areas identified in this project. All licensing and Regulatory approval will be associated with Verizon. In addition, there are 84 towers having a total of 95 links with 12 new towers located throughout the State serving the Public Safety Interoperable Radio Project. These sites are owned by the State of West Virginia and are not subject to a lease fee. Twelve new towers are going to be added to supply the additional areas of the State with the broadband capability required for the project. These new locations will also be owned and no lease agreement is expected.

36. Construction and Vendor Contracts

The middle mile project as described in this request will be mostly completed by contractors and vendors. As indicated in section 33, “Choice of Service Providers”, the solution is largely available through Multi-Protocol Layer Switching (MPLS) applications. The State of WV negotiated a MPLS contract with Verizon that will be passed to Frontier as the merger of the two companies comes to fruition. This contract is the tool of choice to frame out the middle mile and subsequent “last mile” (not contained in this request).

Weekly, senior leadership from both Verizon and Frontier meet with the West Virginia Secretary of Commerce regarding broadband initiatives and planning for West Virginia.

Any towers constructed in concert with this grant will be via coordination with the State of West Virginia Interoperable Working Group (IWG)/Statewide Interoperable Coordinator. This group has installed 84 towers using systems, contracts, etc that are tried and working. For these reasons we will utilize current existing contracts negotiated by the IWG. These contracts are on file and available from the respective State of West Virginia agencies.

Qualification of Management Team and Organizational Readiness



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

37. Management Team Resumes:

Please refer to upload section at the end of the document.

38. Organizational Readiness:

West Virginia is poised in a manner to efficiently and effectively handle the organizational mechanisms and processes relating to implementation, management, and operation of the proposed broadband services relating to this proposal.

Immediately upon receipt of funding, we are prepared and ready to begin the implementation phase. Via an existing state negotiated contract, we can place service orders immediately. The contract was executed by the State of WV purchasing department and is currently being used on an as required basis. Through the management team noted in the attached organizational chart and the WV Broadband Deployment Council as appointed by Governor Manchin, plans are in place facilitating immediate execution. The anchor tenants (public schools, health care, public safety, libraries, court houses and jails) provided input into this middle mile solution; thereby effectively garnering support and data for implementation. Purchase orders, billing and payment to vendors will be via existing, tried, tested, and efficient State of West Virginia procedures.

Management, including appropriate network planning and execution will be coordinated and monitored by the leadership team, Governor's Office of Technology, and the Broadband Deployment Council. The team composition is such that all considerations for an efficient network, including operations and security, will be included.

Coupled with actual construction of the middle mile, we are developing a model that will graphically detail the exact locations, required bandwidth, and priority of this middle mile solution. This graph will be reviewed bimonthly by the leadership team, the Broadband Deployment Council, the Governor, and his staff for assurance of timely and reasonable fruition of the overall project. An operational team composed of Cabinet Secretary Goes, Chief Technology Officer Schafer, Mr. Jimmy Gianato, and Mr. Mike Todorovich will oversee the entire process on a project management basis.

Through partnerships and cooperation with the WV Interoperable Working Group (appointed



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

by Governor Manchin via Executive Order), towers and microwave service will be built. This is a well grounded/established group with considerable experience in microwave/tower/broadband build out. Their expertise will greatly enhance overall ability to execute plans relating to middle mile. Simply stated we are "shovel" ready.

Other

39. Organizational Chart:

Please refer to upload section at the end of document.

40. Legal Opinion:

Please refer to upload section at the end of document

41. Government and other Key Partnerships:

Early in his first administration, Governor Manchin realized a vision for broadband access to every citizen in West Virginia. On April 11, 2008, the Governor stated “We are now in a position to take a leadership role among states in making broadband available to our citizens and businesses. Broadband technology is increasingly essential to enabling West Virginians to better compete in today’s global and technologically-savvy economy.” He made this statement at the signing of HB 4637 that created a statewide Broadband Deployment Council strategy.

Governor Manchin’s vision quickly included many key partners, including community anchor institutions, public safety entities, community organizations, vendors or contributors of in-kind and cash support.

Attached as a supplemental file is a chart titled “WV Broadband Technology Partners” that graphically depicts the key partners in this middle mile endeavor. The first column shows the State entities, including the broadband leadership management, team as they relate to the identified anchors of schools, health care, public safety, libraries, court houses, and jails. The next column shows identified partners of Verizon and Frontier with interlinks via the MPLS contract between the State, the Anchors, and the partners. The right side of the chart identifies some of the last mile opportunities that will be afforded after this middle mile portion is completed. Cabinet Secretary Kelley Goes, as the chair of the broadband leadership team, will



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

coordinate all activities to ensure a smooth relationship and flow of effort during this middle mile construct. As stated in the Executive Summary, the Governor’s Office of Technology is poised to assume responsibility for day to day technical efforts, of this portion of the WV Broadband initiative.

42. Recovery Act and Other Governmental Collaboration.

Health Care:

American Recovery and Reinvestment Act of 2009 provides approximately seventeen billion dollars in funding for enhanced Medicare and Medicaid reimbursement to certain providers who demonstrate meaningful use of certified EHR technology (Certified EHR technology means a qualified electronic health record as defined in Section 3000(13) of the Public Health Services Act that is certified pursuant to Section 3001(c)(5)of such Act).

Section 13301 of the ARRA gives West Virginia’s Department of Health and Human Resources and the Bureau of Medicaid funding to facilitate the use of EHR technology, train personnel and improve eHIE.

Section 4101 of the ARRA gives West Virginia’s Department of Health and Human resources and the Bureau of Medicaid Services the ability to provide incentive payments to eligible professionals to encourage the adoption and use of certified EHR technology. West Virginia will leverage this section for additional funding.

Under the ARRA, approximately 15,000 West Virginia health care providers will become eligible for enhanced Medicare reimbursement in the federal fiscal year beginning in October 1, 2010 by becoming a meaningful user of certified EHR technology and will suffer financial consequences for failing to do so in the federal fiscal year beginning October 1, 2014.

Additionally, approximately 15,000 West Virginia health care providers will become eligible for enhanced Medicaid reimbursement to providers who are engaged in efforts to adopt, implement or upgrade certified EHR technology or who are meaningful users of such technology, beginning on a date that has not yet been specified by the federal government.

Education:

In addition to the collaboration with the West Virginia Department of Commerce on BTOP Infrastructure, many of West Virginia's public K-12 schools/counties will apply for the BTOP Public Computing Centers and/or the Broadband Sustainability Adoption grants. For all three



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

BTOP programs, public education will leverage the following projects: 21st Century Tools for 21st Century; Techsteps--Online Technology Literacy Achievement Profiles for K-8 Grade Students; E-rate discounts for continued broadband use; interactive projects/programs with NASA, Teach 21 resources, and others.

Public Safety:

West Virginia received \$8.4 mil from Department of Commerce Public Safety Interoperable Communications (PSIC) grant that providing a portion of the existing interoperable tower (w microwave) backbone that associated towers in this request will interconnect and provide redundancy. 911 fees will be used for sustainability of a portion of public safety network.

Community Involvement (BTOP Applicants Only)

43. Partnering with Disadvantaged Businesses

This grant request is for the State of West Virginia to use an existing negotiated MPLS contract with Verizon and related FCC rules and regulations. Because of this existing contract with Verizon, the State of West Virginia will not be partnering with any Disadvantaged Businesses. However, disadvantaged businesses will be provided opportunity to utilize and partner with anchors to subscribe, utilize, and populate the end state (not this grant) last mile solution.

H. Project Budget

44. General Overall Budget



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Budget	Loan Request	Grant Request	Equity	Debt	Bond	Other
Network & Access Equipment (switching, routing, transport, access)		27,408,640				
Outside Plant (cables, conduits, ducts, poles, towers, repeaters, etc.)		75,274,657				
Buildings and Land – (new construction, improvements, renovations, lease)						
Customer Premise Equipment (modems, set-top boxes, inside wiring, etc.)						
Billing and Operational Support Systems (IT systems, software, etc.)						
Operating Equipment						



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

(vehicles, office equipment, other)						
Engineering/ Professional Services (engineering design, project management, consulting, etc.)		23,640,000				
Testing (network elements, IT system elements, user devices, test generators, lab furnishings, servers/computers, etc.)						
Site Preparation						
Other						
TOTAL BROADBAND SYSTEM		126,323,297				



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

Total Budget: \$ 126,323,297

45. Detailed Budget:

Please refer to upload section at the end of the document.

Sustainability

46. Reasonableness

The State of West Virginia is seeking funding to build middle mile solutions by utilizing key anchor tenants to build the interstate system of broadband for West Virginia. With the creation of the infrastructure built in this project, key entities will have access to broadband. Our proposed solution will also allow for broadband service to be built out into rural areas of the state with low population density where a sustainable business case cannot be made without substantial subsidies.

The costs utilized to determine the amount of funding requested in this application are based on existing contracts awarded by the State of West Virginia and other government entities after an extensive competitive bidding process. These processes are designed to obtain the best value for the citizens of our State. The anchors defined below provide crucial services to the public and private sectors. These community anchors include schools, health care, public safety, libraries, court houses, and jails. Working with key stakeholders, we have identified the locations where broadband is needed to support key initiatives such as tele-health, alternative education, and advanced public safety applications. These contracts which are currently in place will allow the state to immediately begin placing orders for service literally within days of a grant award being made. The State has a proven record of deploying its tower and microwave network in a very cost effective manner. By partnering with key agencies and working in a collaborative fashion, West Virginia has maintained a very low cost per site to build its public safety microwave network.

The total numbers of sites requested are identified in the table below:

Schools K-12	471
9-1-1 Centers	53 (+ 2 redundancy)
Libraries	176
Tele-Medicine	184
State Police	77



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Jails (13 Regional's & 21 Centers) 34
Planning and Development Council 11
Greenbank Observatory Research 1
County Courthouses 55

Towers at 340 Feet 12
Radios 4 DS-3 Backbone (2 PER Tower Site) 24
Engineering 12

Radios 4 DS-3 Backbone (Additional bandwidth per site) 95

The cost for 1064 sites is \$87,679.79 each. The cost for the construction of 12 additional microwave sites and the addition of 4 additional DS-3s to the existing microwave backbone is \$33,032,000.00 These are very competitive and reasonable costs for the services requested.

47. Historical Financial Statements:

Please refer to upload section at the end of the document.

48. Broadband Subscriber Estimates:

Please refer to upload section at the end of the document.

49. Other Services:

Please refer to upload section at the end of the document.

50. Pro Forma 5-Year Financial Forecast and Assumptions:

Please refer to upload section at the end of the document.

51. Commitment of Capital Funding Support

During the interim legislative session in August 2009, and despite the current challenging economic times, the West Virginia Legislature voted to grant spending authority for \$5 million appropriated to the Broadband Deployment Council (BDC). The BDC is empowered to provide consultation services for any broadband improvement, construction or deployment project; to hire consultants for mapping and project evaluation, dispense funds, and use its powers to bring broadband to unserved areas. The BDC has already retained L. Robert



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Kimball & Assoc. as the expert consultant by a competitive process to assist in assessment and deployment strategies.

The largest portion of in-kind for this project comes from Interoperable Radio Project (IRP) radio tower build out for a state wide system. This project utilizes the existing completed backbone of 84 towers to continue broadband middle mile service throughout the state. The cash value of the existing tower infrastructure directly attributed to this middle mile project is \$28,500,000. These towers include digital microwave designed for public safety voice radio use. This microwave is also utilized for some data transfer as well. All towers built for this system are designed for multiple carrier use in order to maximize the investment of the state and leverage other business opportunities. The overall IRP works via coordination via a Statewide Interoperable Coordinator and is governed by a Governor appointed Interoperable Working Group (IWG).

In addition to the funding mentioned above, the State of West Virginia invests \$1,000,000 annually in grants to local governments to assist in building towers for communications use. Requirements for funding for these towers includes that they provide access to cell phone carriers and wireless broadband providers in order to expand the footprint of these services.

Summary of Capital Investments Related to this request, but not funded by the grant itself.

In-Kind -	\$5,000,000
Cash – IRP Towers	\$28,500,000
Total WV Invest	\$33,500,000
Total this request:	\$126,323,297
%of Capital Invst	26%

BTOP Requirements



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

52. Matching Funds:

- a. Cash: \$ 28,500,000.00
- b. In-Kind: \$ 5,000,000.00
- c. Percent of Total Project Cost: 26

53. Demonstration of Financial Need:

This proposed middle mile project would not be possible without the BTOP funding. Several reasons contribute to this statement. First, as the national economy began to have dire problems and failures, negative impacts on the State of West Virginia’s ability to fund such an endeavor surfaced. The Governor and State Legislature, in order to reduce costs, directed a 5% “across the board” cost reduction. As with most “stock market” investments, WV investment funding dropped commensurate with the market. Due to the rural nature of WV major companies have little interest in making huge investments in sparsely populated areas because of Return on Investment Ratio– low in rural states. For example Frontier is in the process of acquiring Verizon because Verizon desires to get out of the low profit wire/fiber business. Without BTOP there will be minimal middle mile fiber within the confines of West Virginia; however, the BTOP “middle mile” solution proposed herein will ensure broadband accessibility to our entire rural state. To this juncture, there has not been funding available to support this initiative. Many companies are “at-the-ready” with last mile solutions and capability. Without the middle mile proposed in this application, WV will never have viable broadband access to the anchor tenants. With this middle mile solution, competition will be fostered and federal money will be leveraged with the private sector (last mile) to accomplish the objectives of the NOFA relating to this grant.

54. Unjust Enrichment

The Executive Office, State of West Virginia, nor any other entities have requested or received any Federal support for non-recurring costs for the noted areas for this middle mile solution.

55. Disclosure of Federal and/or State Funding Sources

As noted in question 54, the Executive Office, State of West Virginia nor any entity has received or requested any federal or state funding to which this application relates.

I. Self Scoring – BIP Only Self Scoring



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

56. Self Scoring Sheet



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Criteria	Method	Points	Self Scores
<u>PROJECT PURPOSE</u>			
Proportion of Rural Residents Served in Unserved Areas	1 point for every 10,000 unserved households	Up to 5	0
Rural Area Targeting	1 point for every 5% increase in the rural service area up the minimum 75% rural area requirement	Up to 5	0
Remote Area targeting	1 point for every 50 miles a service area is located from a non-rural area	Up to 5	0
Title II Borrower	If you are or were a Title II borrower	5	0
Recovery Act and other governmental collaboration	1 point will be awarded for each governmental or Recovery program the applicant is partnering with	Up to 5	0
<u>PROJECT BENEFITS</u>			
Performance of the offered services	If a last mile wireline project delivers 20M to household – if a last mile wireless projects delivers 2M to end-user – if a middle mile projects delivers 100M to end points	10	0
Affordable of services offered	Points awarded based on the proposed rate structure and the logistics of the proposed service area	Up to 5	0



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

Choice of service provider	If the proposed infrastructure is available to be used by multiple service providers	5	0
Critical Community Facilities	If discounted rate packages at least 25% lower than advertise rates are available to critical facilities	5	0
<u>PROJECT VIABILITY</u>			
Applicant's organizational capability	Points will be awarded on the strengths and accomplishments of key management	Up to 12	0
Community Support	If a letter of support has been received from a designated representative of the community for every community in the proposed service territory	2	0
Ability to promptly start project	If the applicant can demonstrate that all licenses and regulatory approvals have been received, contractors and vendors are ready to enter into contracts, and equity has been deposited into applicant accounts	10	0
Socially and economically disadvantaged small businesses (SDB), as defined by section 8(a) of the Small Business Act, 15 U.S.C. §637.	If the applicant is a Section 8(a) entity	1	0
<u>PROJECT BUDGET AND SUSTAINABILITY</u>			
Reasonableness of the budget	Points will be awarded based the	Up to 5	0



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

	adequacy of the proposed budget		
Leverage of outside resources (outside funding/financing requested)	(i) 10 points if this ratio is greater than 100% (ii) 7 points if this ratio is between 100% and 75% (iii) 5 points if this ratio is between 75% and 50% (iv) 3 points if this ratio is between 50% and 25% (v) 1 points if this ratio is lower than 25%	10	1
Extent of grant funding (Grant funds/loan funds)	(i) 0 points if this ratio equals 100% (ii) 1 points if this ratio is between 100% and 75% (iii) 3 points if this ratio is between 75% and 50% (iv) 5 points if this ratio is lower than 50% (v) 10 points if no grant funds are requested	10	0
Total Points		100	1



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

J. BTOP Certification Requirements

Certification (Requested for BTOP)

Please refer to upload section at the end of the document regarding following uploads.

1. U.S. Department of Commerce, Broadband Technology Opportunities Program
2. SF-424D Assurances—Construction Programs (Schedule N)
3. CD-511, Certification Regarding Lobbying (Attachment O)
4. SF-LLL, Disclosure of Lobbying Activities (Attachment P)
5. CD-512, Certification Regarding Lobbying—Lower-Tier Covered Transactions (Attachment Q) This certification will not be required until the time of the grant award, because it applies to subcontractors, etc.

K. BIP Certification Requirements

Certification (Requested for BIP)

Please refer to upload section at the end of the document regarding following uploads.

1. Equal Opportunity and Nondiscrimination Certification
2. Certification Regarding Architectural Barriers
3. Uniform Relocation Assistance and Real Property Acquisition - Policies Act of 1970 Certification
4. Certification Regarding Debarment, Suspension, and Other Responsibility Matters – Primary Covered Transactions
5. Certification Regarding Lobbying for Contracts, Grants, Loans, and Cooperative Agreements



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

- 6. Network Design and Implementation Plan Certification (to be complete for projects requesting more than \$1 million in federal assistance)

L. Schedules

Schedule: A-1 Congressional Districts

1. State the Congressional District of the Applicant's headquarters
West Virginia - 2

2. State the Congressional District for each area covered by the Project.
West Virginia - 1

West Virginia - 2

West Virginia - 3

M. Proposed Funded Service Area Details (BIP & BTOP)

13. Proposed Funded Service Area (BIP - Last Mile Projects):

Proposed Funded Service Area Name:
Census Blocks in Proposed Funded Service Area:
Community Name:
Rural Classification of the Community:
BIP - Service Status:

BIP - If Service Status is "Underserved" please select at least one applicable option from this list.
--

BTOP – Service Status:



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM	Easygrants ID: 2762
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Executive Office State of West Virginia
Task: Submit Application - Infrastructure Programs	Applicant Name: Ms. Kelley M Goes

BTOP - If Service Status is "Underserved" please select at least one applicable option from this list.

Total Square Miles of Community:
Total Population :
Total Number of Households:
Total Number of Businesses:
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities:

14. Proposed Service Area (BTOP - Middle Mile Project):

Middle Mile Span Name: State of West Virginia

Census Blocks in Middle Mile Span: West Virginia has 82,000 census blocks serving 290 communities.

Note: This request is for statewide middle mile and last mile (when funded) will be statewide.

Last Mile Service Area Name: State of West Virginia

Community Name: State of West Virginia

Rural Classification of the Community: Rural

BIP – Service Status:

BIP - If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.

BTOP - Service Status: Underserved

BTOP - If Service Status is "Underserved" please select at least one applicable option from this list.

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles of Service Area: 24,216

Total Population : 1,808,344

Total Number of Households: 736,481

Total Number of Businesses: 110,195

Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 1,064



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 2:27:33 AM		Easygrants ID: 2762	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Executive Office State of West Virginia	
Task: Submit Application - Infrastructure Programs		Applicant Name: Ms. Kelley M Goes	

N. Uploads

In order to improve system performance and help ensure that all applicants are able to complete their applications by the deadline, we have changed the way your application PDF is created. This PDF contains all of the information you entered throughout the Easygrants data entry screens. PDF copies of all documents that have been uploaded can be viewed and printed separately from the **Main page of the application after you submit**. These will continue to be available to you in read-only format after your application has been submitted.